UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,303	12/12/2003	Irwin Gerszberg	1209-30	9957

23869 7590 11/14/2006

HOFFMANN & BARON, LLP
6900 JERICHO TURNPIKE
SYOSSET, NY 11791

EXAMINER	
LIU, LI	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/735,303	GERSZBERG ET AL.	
	Examiner	Art Unit	
	Li Liu	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-9,15-24 and 29-32* is/are rejected.

7)☒ Claim(s) *5,6,10-14 and 25-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/28/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 01/28/2004 is being considered by the examiner. The IDS submitted on 11/08/2004 has not been considered because the IDS is unrelated to the application.

Preliminary Amendment

2. The PRELIMINARY AMENDMENT with the amendments to the claims filed on 11/19/2004 and the SUPPLIMENTAL PRELIMINARY AMENDMENT with the amendment to the claims filed on 11/22/2004 have not been entered because they are not related to the original application.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "the first comparator, second comparator, third comparator, and fourth comparator". There is insufficient antecedent basis for this limitation in the claim. The "first comparator, second comparator, third comparator, and fourth comparator" are not introduced in claim 1.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 17, 18 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Izadpanah et al (US 2002/0122230).

1). With regard to claim 1, Izadpanah et al discloses communication system comprising:

an optical communication path (104 in Figure 1(a));

an electrical communication path (106 in Figure 1(a));

a controller (108 in Figure 1(a) and 208 in Figure 2), the controller comparing a characteristic of an optical receive signal (330 in Figure 3(b)) to at least one optical threshold signal (336 in Figure 3(b), [0043] and [0051]), the controller comparing a characteristic of an electrical receive signal (Figure 3(a), [0043] and [0051]) to at least one electrical threshold signal (same structure as Figure 3(b) is used to compare electrical signal, [0051], and Figure 3(a), [0043]), the controller generating a first control signal (the output from 338 in Figure 3(b)) representing the comparison of the characteristic of the optical receive signal to the at least one optical threshold signal (the

signal generated by controller based on the transmission power received by the laser portion, [0043]), the controller generating a second control signal (304 in Figure 3(a)) representing the comparison of the characteristic of the electrical receive signal to the at least one electrical threshold signal (the signal generated by controller based on the transmission power received by the radio frequency portion, [0043]); and

at least one switch (300 in Figure 3(a) or 328 in Figure 3(b)), the at least one switch routing at least one of the optical receive signal and an optical transmit signal (the data signal can be optical signal, [0051]) through at least a portion of at least one of the optical communication path (to Transmission optics 308 in Figure 3(a)) and the electrical communication path (to RF antenna 312 in Figure 3(a)) in response to the first control signal without requiring user intervention (response to a environment threshold, controller decides the percentage of communication through the laser portion, [0043] and [0046]), the at least one switch routing at least one of the electrical receive signal and an electrical transmit signal (the data signal can electrical signal, [0051]) through at least a portion of at least one of the optical communication path (308 Transmission optics in Figure 3(a)) and the electrical communication path (312 RF antenna in Figure 3(a)) in response to the second control signal without requiring user intervention (response to a environment threshold, controller decides the percentage of communication through the electrical portion, [0043] and [0046]).

2). With regard to claim 2, Izadpanah et al discloses wherein the characteristic of at least one of the optical receive signal and the electrical receive signal comprises a signal strength (the transmission power level [0043]).

3). With regard to claim 3, Izadpanah et al discloses wherein the at least one optical threshold signal comprises at least one of a breakpoint reference threshold signal and a clear weather threshold signal (Izadpanah discloses that the when power in optical portion drops below a threshold, the communication is re-routed through the RF portion; then as weather condition change and a greater power level is detected from laser portion, the controller will route more of the communication through the laser portion, so it is inherent that two levels of threshold are used for controlling. Also a stepping mechanism is introduced for controlling [0041] and [0042]).

4). With regard to claim 4, Izadpanah et al discloses wherein the at least one electrical threshold signal comprises at least one of a breakpoint reference threshold signal and a clear weather threshold signal (the controller can receive the optical and electrical signals, the control scheme is the same, [0043] and [0046], therefore, it is inherent that two electrical thresholds are used for controlling, similar to the optical thresholds).

5). With regard to claim 17, Izadpanah et al discloses wherein at least one of the first comparator, second comparator, third comparator, and fourth comparator comprises a combinatorial gate (AND GATE 338 in Figure 3(b), [0056], and FPGA, [0053]).

6). With regard to claim 18, Izadpanah et al discloses a method of automating a communication system comprising the steps of:

comparing a characteristic of an optical receive signal to at least one optical threshold signal ([0043] and [0051], 338 in Figure 3(b));

comparing a characteristic of an electrical receive signal to at least one electrical threshold signal ([0043] and [0051], Figure 3(a));

generating a first control signal (the output from 338 in Figure 3(b)) representing the comparison of the characteristic of the optical receive signal to the at least one optical threshold signal (the signal generated by controller based on the transmission power received by the laser portion, [0043]);

generating a second control signal (304 in Figure 3(a), [0051]) representing the comparison of the characteristic of the electrical receive signal to the at least one electrical threshold signal (the signal generated by controller based on the transmission power received by the radio frequency portion, [0043]);

routing (328 in Figure 3(b)) at least one of the optical receive signal and an optical transmit signal the through at least a portion of at least one of an optical communication path (to Transmission optics 308 in Figure 3(b)) and an electrical communication path (to RF modem 342 in Figure 3(b)) in response to the first control signal without requiring user intervention; and

routing (300 in Figure 3(a)) at least one of the electrical receive signal and an electrical transmit signal through at least a portion of at least one of the optical communication path (to Transmission optics 308 in Figure 3(a)) and the electrical communication path (to RF antenna 312 in Figure 3(a)) in response to the second control signal without requiring user intervention.

7). With regard to claim 31, Izadpanah et al discloses a method of automatically increasing the availability of a communication system comprising the steps of:

comparing at least one characteristic of an optical receive signal to at least one optical threshold signal (338 in Figure 3(b), [0043] and [0051]);

comparing at least one characteristic of an electrical receive signal to at least one electrical threshold signal (Figure 3(a), [0043] and [0051]);

routing (328 in Figure 3(b)) at least one of the optical receive signal and an optical transmit signal through at least a portion of at least one of an optical communication path (to Transmission optics 308 in Figure 3(b)) and an electrical communication path (to RF modem 342 in Figure 3(b)) in response to the comparison of the at least one characteristic of the optical receive signal to the at least one optical threshold signal; and

routing (300 in Figure 3(a)) at least one of the electrical receive signal and an electrical transmit signal through at least a portion of at least one of the optical communication path (to Transmission optics 308 in Figure 3(a)) and the electrical communication path in response to the comparison of the at least one characteristic of the electrical receive signal to the at least one electrical threshold signal (to RF antenna 312 in Figure 3(a)).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7, 19-23 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izadpanah et al (US 2002/0122230).

1). With regard to claim 7, Izadpanah et al discloses all of the subject matter as applied to claim 1 above. And Izadpanah et al further discloses wherein the controller further comprises:

a first comparator (338 in Figure 3(b)), the first comparator comparing the characteristic of the optical receive signal (330 in Figure 3(b)) to a first optical threshold signal (336 in Figure 3(b), the first comparator outputting a first comparison signal (the output from 338 in Figure 3(b)) representing the comparison between the characteristic of the optical receive signal and the first optical threshold signal;

But, Izadpanah et al does not expressly disclose a second comparator, which comparator comparing the characteristic of the electrical receive signal to a first electrical threshold signal, the second comparator outputting a second comparison signal representing the comparison between the characteristic of the electrical receive signal and the first electrical threshold signal.

Izadpanah et al discloses that the input signal can be optical signal or electrical signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a second comparator for electrical signal. By using a second comparator, the optical signal and electrical signal can be compared independently without sharing one comparator, so to have more flexibility for controlling. Claim 7 is not patentable different from the controller in Izadpanah et al, because it is "to

duplicate a part for a multiple effect" (see St. Regis Paper Company v. Bemis Company, Inc., 193 USPQ 8 (CA 7 1977)).

2). With regard to claim 19, Izadpanah et al discloses all of the subject matter as applied to claim 1 above. Izadpanah et al discloses the method of automating a communication system further comprising the steps of:

converting the optical transmit signal to the electrical transmit signal (there is a O/E converter before RF modem in Figure 3(b), [0056], Figure 3(b), or the photodiode 354 in Figuer 3(c)) if the optical transmit signal is to be routed through at least a portion of the electrical communication path;

converting the electrical transmit signal to the optical transmit signal (the E/O in Figure 3(a)) if the electrical transmit signal is to be routed through at least a portion of the optical communication path.

But, Izadpanah et al does not expressly disclose converting the optical receive signal to the electrical receive signal if the optical receive signal is to be routed through at least a portion of the electrical communication path; and converting the electrical receive signal to the optical receive signal if the electrical receive signal is to be routed through at least a portion of the optical communication path; and

Izadpanah et al teaches the signal transmission side, not expressly disclose how to convert the received signal. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same transmitting structure to convert the received signal (treated as another input signals) to optical or electrical signal and

route the signal accordingly so that the controlling and hybrid communication can be made easier.

3). With regard to claim 20, Izadpanah et al discloses all of the subject matter as applied to claim 18 above. Izadpanah et al further discloses wherein the characteristic of at least one of the optical receive signal and the electrical receive signal comprises a signal strength (the transmission power level [0043]).

4). With regard to claim 21, Izadpanah et al discloses all of the subject matter as applied to claim 18 above. Izadpanah et al further discloses wherein the at least one optical threshold signal comprises at least one of a breakpoint reference threshold signal and a clear weather threshold signal (Izadpanah discloses that the when power in optical portion drops below a threshold, the communication is re-routed through the RF portion; then as weather condition change and a greater power level is detected from laser portion, the controller will route more of the communication through the laser portion, so it is inherent that two levels of threshold are used for controlling. Also a stepping mechanism is introduced for controlling [0041] and [0042]).

5). With regard to claim 22, Izadpanah et al discloses all of the subject matter as applied to claim 18 above. Izadpanah et al further discloses wherein the at least one electrical threshold signal comprises at least one of a breakpoint reference threshold signal and a clear weather threshold signal (the controller can receive the optical and electrical signals, the control scheme is the same, [0043] and [0046], therefore, it is inherent that two electrical thresholds are used for controlling, similar to the optical thresholds).

6). With regard to claim 23, Izadpanah et al discloses all of the subject matter as applied to claim 18 above. Izadpanah et al further discloses the method further comprising the steps of:

comparing (338 in Figure 3(b)) the characteristic of the optical receive signal (330 in Figure 3(b)) to a first optical threshold signal (336 in Figure 3(b);

generating a first comparison signal (the output from 338 in Figure 3(b)) representing the comparison between the characteristic of the optical receive signal and the first optical threshold signal;

comparing the characteristic of the electrical receive signal to a first electrical threshold signal (same structure as Figure 3(b) is used to compare electrical signals, [0051], and Figure 3(a)); and

generating a second comparison signal (304 in Figure 3(a), [0051]) representing the comparison between the characteristic of the electrical receive signal and the first electrical threshold signal.

7). With regard to claim 32, Izadpanah et al discloses all of the subject matter as applied to claim 31 above. Izadpanah et al further discloses the method of automating a communication system further comprising the steps of:

converting the optical transmit signal to the electrical transmit signal (there is a O/E converter before RF modem in Figure 3(b), [0056], Figure 3(b), or the photodiode 354 in Figuer 3(c)) if the optical transmit signal is to be routed through at least a portion of the electrical communication path;

converting the electrical transmit signal to the optical transmit signal (the E/O in Figure 3(a)) if the electrical transmit signal is to be routed through at least a portion of the optical communication path.

But, Izadpanah et al does not expressly disclose converting the optical receive signal to the electrical receive signal if the optical receive signal is to be routed through at least a portion of the electrical communication path; and converting the electrical receive signal to the optical receive signal if the electrical receive signal is to be routed through at least a portion of the optical communication path.

Izadpanah et al teaches the signal transmission side, it is desirable that the receive side has the same structure as the transmission side. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same transmitting structure to convert the received signal (treated as another input signals) to optical or electrical signal and route the signal accordingly so that so that the controlling and hybrid communication can be made easier.

5. Claims 8, 9 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izadpanah et al (US 2002/0122230) as applied to claims 1 and 7 above and in view of Mizuhara et al (US 2003/0010891).

1). With regard to claim 8, Izadpanah et al discloses all of the subject matter as applied to claim 1 above. But Izadpanah et al does not expressly disclose wherein the controller further comprises: a first flip-flop, the first flip-flop being operatively coupled to the first comparison signal, the first flip-flop outputting a first clocked signal representing the first comparison signal, the first control signal being responsive to the first clocked

signal; and a second flip-flop, the second flip-flop being operatively coupled to the second comparison signal, the second flip-flop outputting a second clocked signal representing the second comparison signal, the second control signal being responsive to the second clocked signal.

However, the flip-flop coupled to the comparator has been widely used in automatic controller. One of such circuits is disclosed by Mizuhara et al (Figures 3, 9 and 11-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the flip-flop circuit as widely used in the signal processing to the system of Izadpanah et al so that the signals routing/switching can be made easier and more accurate.

2). With regard to claim 9, Izadpanah et al discloses all of the subject matter as applied to claims 1 and 8. And Izadpanah et al discloses the using of clock signal with the controller (386 in Figure 3(d), [0058]). But Izadpanah et al does not expressly disclose wherein the first flip-flop synchronously clocks the first clocked signal in accordance with a clock signal, the second flip-flop synchronously clocking the second clocked signal in accordance with the clock signal.

However, the flip-flop which synchronously clocks the clocked signal has been widely used in automatic controller. Mizuhara et al (Figures 3, 9 and 11-13) discloses such circuit ([0064]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the clocked flip-flop circuit as widely used in the

signal processing to the system of Izadpanah et al so that the signals routing/switching can be made easier and more accurate.

3). With regard to claim 24, Izadpanah et al discloses all of the subject matter as applied to claims 18 and 23. And Izadpanah et al discloses the using of clock signal with the controller (386 in Figure 3(d), [0058]). But Izadpanah et al does not expressly disclose the method further comprising the steps of: generating a first clocked signal by synchronously clocking the first comparison signal, the first control signal being responsive to the first clocked signal; and generating a second clocked signal by synchronously clocking the second comparison signal, the second control signal being responsive to the second clocked signal.

However, the control signal synchronously clocking the clocked signal has been widely used in automatic controller. Mizuhara et al (Figures 3, 9 and 11-13) discloses such circuit ([0064]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the clocked signal and clocking the control signal as widely used in the signal processing to the system of Izadpanah et al so that the signals routing/switching can be made easier and more accurate.

6. Claims 15, 16, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izadpanah et al (US 2002/0122230) as applied to claim 1 above, and in view of Zavrel et al (US 5,585,953).

1). With regard to claims 15 and 16, Izadpanah et al discloses all of the subject matter as applied to claims 1 above. But Izadpanah et al does not expressly discloses

wherein the optical communication path is adapted to at least one of modulate and demodulate at least one of an on-off key, PSK, 16 QAM, 32 QAM, 64 QAM, and QPSK signal; and the electrical communication path is adapted to at least one of modulate and demodulate at least one of an on-off key, PSK, 16 QAM, 32 QAM, 64 QAM, and QPSK signal.

For signal transmission, the optical or RF carrier must be modulated according to data signal. Zavrel et al discloses OOK and FSK etc for IR/RF hybrid communications (column 2 line 27-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply one of the modulation formats to the system of Izadpanah et al so that the data signals can be transmitted.

2). With regard to claims 29 and 30, Izadpanah et al discloses all of the subject matter as applied to claim 18 above. But Izadpanah et al does not expressly discloses: adapting the optical communication path to at least one of modulate and demodulate at least one of an on-off key, PSK, 16 QAM, 32 QAM, 64 QAM, and QPSK signal; and adapting the electrical communication path to at least one of modulate and demodulate at least one of an on-off key, PSK, 16 QAM, 32 QAM, 64 QAM, and QPSK signal.

For signal transmission, the optical or RF carrier must be modulated according to data signal. Zavrel et al discloses OOK and FSK etc for IR/RF hybrid communications (column 2 line 27-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply one of the modulation formats to the system of Izadpanah et al so that the data signals can be transmitted.

Allowable Subject Matter

7. Claims 5, 6, 10-14 and 25-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Willebrand et al (US 6,763,195, 2004/0208591) discloses a hybrid wireless optical and radio frequency communication link.

Verbana et al (US 2002/0122231) discloses a hybrid through-air telecommunication system protected against outages.

Acampora (US 6,314,163) discloses a hybrid communication system.

Sato (US 4,904,993) discloses a apparatus with selectable RF and optical signal transmission.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Liu whose telephone number is (571)270-1084. The examiner can normally be reached on Mon-Fri, 8:00 am - 5:30 pm, alternating Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Li Liu
November 8, 2006

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER